

REMARKS

Claims 2, 9-11, 13 and 14 are pending in this application. By this Amendment, claim 2 is amended. No new matter is added. Reconsideration of the application is respectfully requested.

I. Rejection Under 35 U.S.C. §112, First Paragraph

The Office Action rejects claims 2, 9-11, 13 and 14 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Office Action asserts that the specification does not disclose an apparatus including light traveling "in a direction substantially perpendicular to the major surface of the transparent substrate so as to travel toward the liquid crystal panel," as recited in claim 2. Applicant respectfully traverses the rejection.

The feature of light traveling in a spread illuminating apparatus of claim 2 is clearly supported by the specification. For example, in Figs. 1 and 3, rays of light emitted from a fluorescent tube 3 enter a side surface of a transparent substrate 2. See page 8, lines 31-34. Then, the light rays strike against groove portions 2a formed directly on a major surface of the transparent substrate 2 and the light rays are directed toward a liquid crystal panel 1. See page 8, lines 34-35. After the light rays are reflected by the liquid crystal panel 1, the light rays again enter the transparent substrate 2 and penetrate the transparent substrate 2 to be emitted in a viewing direction (above the grooves 2a). See page 8, line 35 - page 9, line 3.

For at least the reasons discussed above, Applicant respectfully submit that the specification provides ample support for reflected light traveling in a direction substantially perpendicular to the major surface of the transparent substrate so as to travel toward the liquid crystal panel. Further, Applicants respectfully submit that a person skilled in the art would understand that the light rays, reflected by the grooves 2a toward the liquid crystal panel 1, are substantially perpendicular to the major surface of the transparent substrate 2 so that the

reflected light rays may leave the transparent substrate 2. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

To expedite prosecution of this application, Applicants amend claim 2 to delete recitation of light traveling in a direction "substantially perpendicular" to the major surface of the transparent substrate. However, Applicants also amend claim 2 to recite "whereby a portion of light traveling in a direction parallel to the major surface of the transparent substrate is reflected at said plurality of straight groove portions in a direction toward the liquid crystal panel" to further clarify that only some of the light that travels parallel to a major surface is reflected at the groove portions.

II. Rejection Under 35 U.S.C §103(a)

The Office Action rejects claims 2, 9-11, 13 and 14 under 35 U.S.C. §103(a) over U.S. Patent No. 5,764,315 to Yokota et al. (Yokota). Applicants respectfully traverse the rejection.

A. "Directly" and "Opposite to"

Yokota does not disclose a spread illuminating apparatus in which "a plurality of straight groove portions formed directly on a major surface of said transparent substrate, the major surface being opposite to the surface facing the liquid crystal panel, intersect one another, whereby a portion of light traveling in a direction parallel to the major surface of the transparent substrate is reflected at said plurality of straight groove portions in a direction toward the liquid crystal panel," as recited in independent claim 2.

Yokota discloses, in Fig. 12, a planar lighting device 30 including a light source 33 provide at a side of a transparent light guiding plate 32, at least one light adjusting sheet 50 formed with grooves provided above the transparent light guiding plate 32, and a reflector plate 34 provided below the light guiding plate 32. See col. 9, lines 10-17, and col. 10, lines 52-53. Yokota also discloses that the a transparent light guiding plate 32 and the light

adjusting sheet 50 are separate layers. Therefore, the grooves are not formed directly on a major surface of the transparent light guiding plate 32.

Although not shown in Fig. 12, Yokota also teaches that a liquid crystal display 36 is installed in front of, i.e., above, the light adjusting sheet 50 of the planar lighting device 30. See col. 9, lines 21-23. Examples of the position of the liquid crystal display 36 with respect to a light adjusting sheet 37, 60 are shown in Figs. 6, 26 and 27. As shown in Figs. 6, 26 and 27, the grooves are formed on a surface facing the liquid crystal display 36. Therefore, the grooves are not formed on a major surface being opposite to the surface facing the liquid crystal panel 36.

B. "Light traveling parallel to a major surface of the substrate is reflected at the grooves"

As a result of the structure of Yokota's planar lighting device 30, light emitted by the light source 33 enters a side surface of the transparent light guiding plate 32. See Figs. 12. Then, the light may either exit the transparent light guiding plate 32 via a top surface (major surface) toward the light adjusting sheet 50 and/or may exit a bottom surface (major surface) toward the reflector plate 34 to be reflected back through the substrate.

A portion of the light, emitted by Yokota's light source 33 of, may enter the side surface of the transparent light guiding plate 32 and travel in a direction parallel to a top/bottom (major surface) of the transparent light guiding plate 32. See Fig. 12. However, this parallel light does not reach the grooves located on the light adjusting sheet 50, which is positioned upward from the transparent light guiding plate 32. See Fig. 12. Only light that travels in an upward direction, which is not parallel to the top/bottom (major surface) of the transparent light guiding plate 32, can reach the grooves. Therefore, the light that actually contacts the grooves is not parallel to a major surface of the transparent substrate.

* * *

In the spread illuminating apparatus of claim 2, a plurality of straight groove portions are formed directly on a major surface of said transparent substrate." Because of this structure, "a portion of light traveling in a direction parallel to the major surface of the transparent substrate" may be "reflected at said plurality of straight groove portions in a direction toward the liquid crystal panel."

For example, as discussed above with respect to the §112 rejection, rays of light emitted from the fluorescent tube 3 enter the side surface of a transparent substrate 2. See page 8, lines 31-34. Then, some of the light rays may strike against the groove portions 2a. Because the grooves 2a are formed directly on a major surface of the transparent substrate 2, the grooves 2a are positioned so that light rays from the fluorescent tube 3 may travel directly to the grooves 2a without prior reflection. See Fig. 3. Therefore, such light rays may be parallel to a top/bottom (major surface) of the transparent substrate 2 when these light rays contact the groove portions 2a to be subsequently reflected toward the liquid crystal panel 1. See page 8, lines 34-35. Yokota does not teach or suggest such features. Therefore, Yokota does not teach or suggest the spread illuminating apparatus of claim 2.

For at least the reasons discussed, claim 2 is patentable over Yokota. Claims 9-11, 13 and 14 depend from claim 2, and thus also are patentable over Yokota for at least the reasons set forth above, as well as for the additional features they recite. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 2, 9-11, 13 and 14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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